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Reaction Zone Structure of High Explosives With Additions[1]
ALEXANDER UTKIN, ALEXANDER ANANIN, SERGEY PERSHIN, Institute of Problem of Chemical Physics RAS — The reaction zone structure for steady-state detonation waves in pressed HE with additions TNT/RDX 25/75+25% graphite like boron nitride BN and RDX+16.5% graphite have been investigated. The interest in these mixtures was caused by unusual particle velocity profile, recorded by electromagnetic method elsewhere: sharp velocity decrease was observed behind shock front. To investigate that problem in detail the laser interferometric system VISAR was used. The laser beam was reflected from aluminum foil with a thickness from 50 to 850 mkm which was placed on the boundary between HE charge and water window. As a result of experiments the reaction time was found (150-200 ns) and it was demonstrated that the ratio of particle velocity in Von Neumann spike to Chapman-Jouguet velocity can exceed 2. No peculiarities on the particle velocity profiles were found.

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